

Atmospheric Composition Portal (ACP)

Status and Plans

January 10, 2014



Knowledge for Tomorrow

ACP Mission Statement

- **Provide access, tools, and contextual guidance to scientists and value-adding organizations in using remotely sensed atmospheric composition data, information, and services.**
- **Help foster interoperability and application of atmospheric composition data, information and services worldwide.**
- **Identify the unique requirements and common (shared) features of the ACC and GEOSS users to provide a value-added and complementary capability.**
- **Work with partners in CEOS and the broader AC community in advancing this initiative (ACP)**



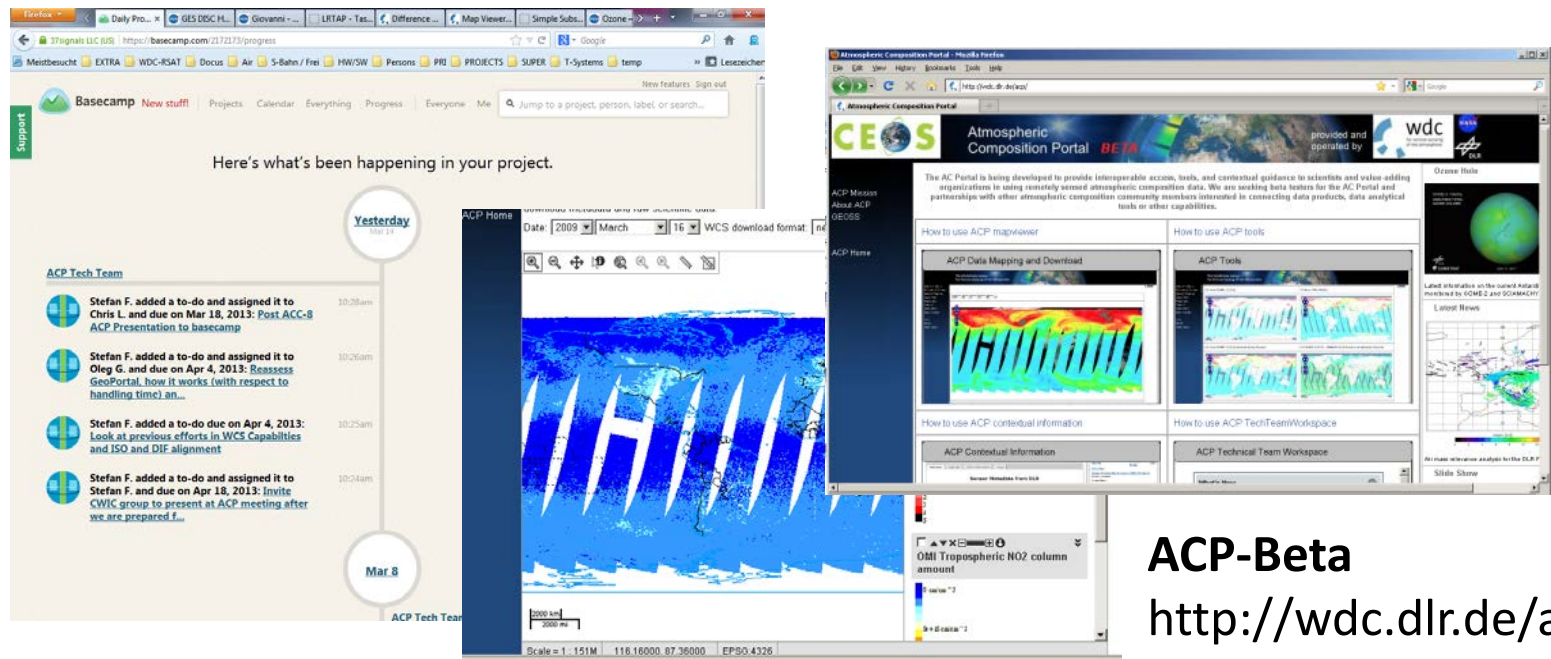
ACP Strategic Objectives

- **Engage with a wider subset of the Atmospheric Science Community [MS 4]** – To date the ACP has primarily been an activity between DLR and NASA. The objective would be to continue outreach to other CEOS members and others in the AC community while updating the ACP website to make it more compelling for other organizations to become involved in the ACP.
- **Provide Value Adding Tools [MS 1; MS 3]** – Provide information about and access to a variety of tools that help in finding, accessing, analyzing and otherwise using remotely sensed AC data.
- **AC Interoperability Guidance [MS 2]** – Provide best practices to the AC community on use and implementation of standards for improving interoperability. Stated another way, provide guidance for AC data providers and AC data users to help them share and make use of AC data and processing/analysis tools.



ACP at the Intersection of Atmospheric and Information Sciences

The ACP aims to provide a community-oriented framework that applies best practices in information science and technology to atmospheric composition and aerosol science.



ACP Data Table

- Provide quick and easy to use list of AC data available across the community
- Allow different user groups to filter list to identify datasets relevant to their need
- A launching point to additional metadata, data access, and other information
- Atmospheric chemistry and aerosol products

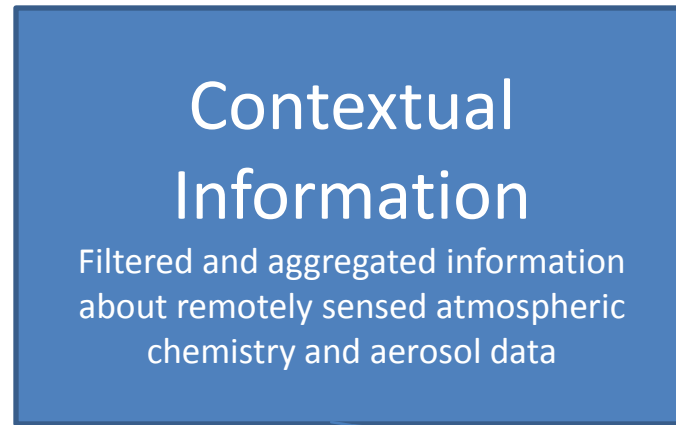
Atmospheric Composition Data Table : Sheet1 [Go to spreadsheet view](#) - [Hide colors](#) 1-129 of 129 Rows per page: 250 [Go](#)

Row ▲		Dataset Name	Data Provider	Atmospheric Composition Variables (P=Profile, C=Column)						Temporal Resolution	Spatial Resolution	Catalog	Data Access					Notes	Data Origin
		Dataset Name	Data Provider	CH4	CO	CO2	NO2	O3	SO2	Temporal Resolution	Spatial Resolution	Catalog	FTP	HTTP	OPeNDAP	WCS	WMS	Column R	Column S
	+ Add	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)	(All)
1	Edit	AIRS/Aqua Level 3 daily CO2 in the free troposphere (AIRS+AMSU) v. 5	NASA GSFC DAAC			C				Daily	1x1 deg	GCMD	✓		✓				Lynnes Prototype
2	Edit	AIRS L3 Standard daily product (AIRS/AMSU) v. 6	NASA GSFC DAAC	P, C	P, C			P, C		Daily	1x1 deg	GCMD	✓		✓	✓	✓		Lynnes Prototype
3	Edit	OMI/Aura Ozone (O3) DOAS Total Column Daily L3 Global 0.25deg Lat/Lon Grid V003 (OMDOAO3e)	NASA GSFC DAAC					C		Daily	0.25x0.25 deg	GCMD	✓		✓	✓			Lynnes Prototype
4	Edit	ACOS GOSAT/TANSO-FTS Level 2 Full Physics Standard Product	NASA/GSFC /SED/ESD /GCDC/GESDISC			✓						GCMD	✓	✓					Automated GESDISC retrieval of GCMD info
5	Edit	AIRS/Aqua Level 2 Standard physical retrieval (AIRS+AMSU+HSB) V005 (AIRH2RET) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC						✓	6 Minute(s)	50 km x 50 km	GCMD	✓	✓	✓				Automated GESDISC retrieval of GCMD info
6	Edit	Aqua AIRS Level 2 Standard Physical Retrieval (AIRS+AMSU+HSB) V006 (AIRH2RET) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC						✓	6 Minute(s)	50 km x 50 km	GCMD	✓	✓	✓				Automated GESDISC retrieval of GCMD info
7	Edit	AIRS/Aqua Level 2 Support retrieval (AIRS+AMSU+HSB) V005 (AIRH2SUP) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC	✓	✓	✓		✓		6 minute(s)	50 km x 50 km	GCMD	✓	✓	✓				
8	Edit	Aqua AIRS Level 2 Support Retrieval (AIRS+AMSU+HSB) V006 (AIRH2SUP) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC	✓	✓	✓		✓		6 minute(s)	50 km x 50 km	GCMD	✓	✓	✓				GESDISC retrieval of GCMD info
9	Edit	AIRS/Aqua Level 3 8-day standard physical retrieval (AIRS+AMSU+HSB) V005 (AIRH3ST8) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC					✓		Once per 8 days (daytime and nighttime)	1x1 deg x 1x1 deg	GCMD	✓	✓	✓		✓		Automated GESDISC retrieval of GCMD info
10	Edit	AIRS/Aqua Level 3 Daily standard physical retrieval (AIRS+AMSU+HSB) V005 (AIRH3STD) at GES DISC	NASA/GSFC /SED/ESD /GCDC/GESDISC					✓		Once per day	1 deg x 1 deg	GCMD	✓	✓	✓	✓			Automated GESDISC retrieval of GCMD info

[Go to spreadsheet view](#) - [Hide colors](#) - Powered by [Google Drive](#) - [Report Abuse](#) 1-129 of 129 Rows per page: 250 [Go](#)

DRAFT

<https://docs.google.com/spreadsheet/lv?key=0ArbpQl2Q0oGRdG5lTGl2LUtTOHduczJaZC1CNy0tRUE&rm=full#gid=0>



Science Team
Reference
Documents

Standard
Metadata
Records

Semi-automated
search, filter,
process, aggregate

Journal Articles

Which datasets are
used for what type
of science and
applications?

RSS Feeds

Which datasets are
being discussed in
the 'news' and
why?

Social Media
(Blogs, other?)

Who is talking
about datasets and
why?

Wikis



Journal Articles

Journal Article
Catalogs

Search

Process Results

Include as part of
Contextual Metadata

IEEE Xplore®
DIGITAL LIBRARY

ScienceDirect

SCIRUS
for scientific information only

Others



ISO 19115
Supplemental
Information



Journal Articles

Journal Article
Catalogs

SCIRUS
for scientific information only

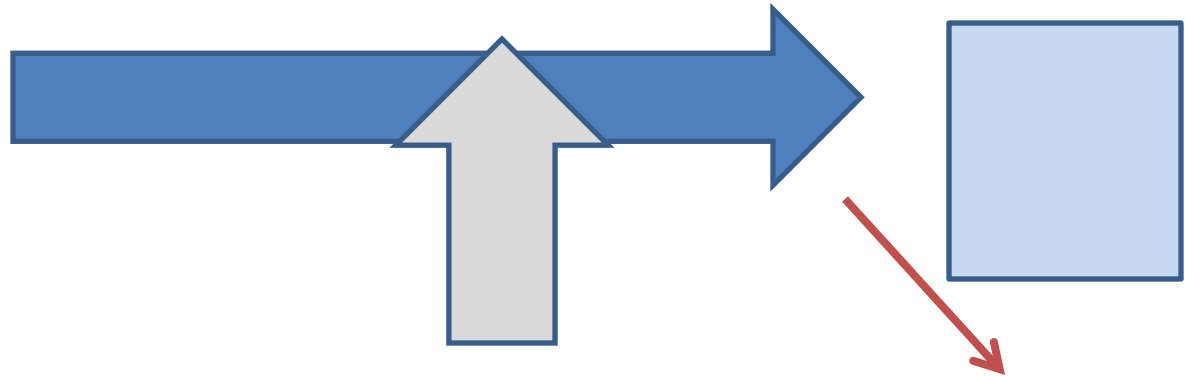
ScienceDirect

IEEE Xplore®
DIGITAL LIBRARY

Search

Process Results

**Include as part of
Contextual Metadata**



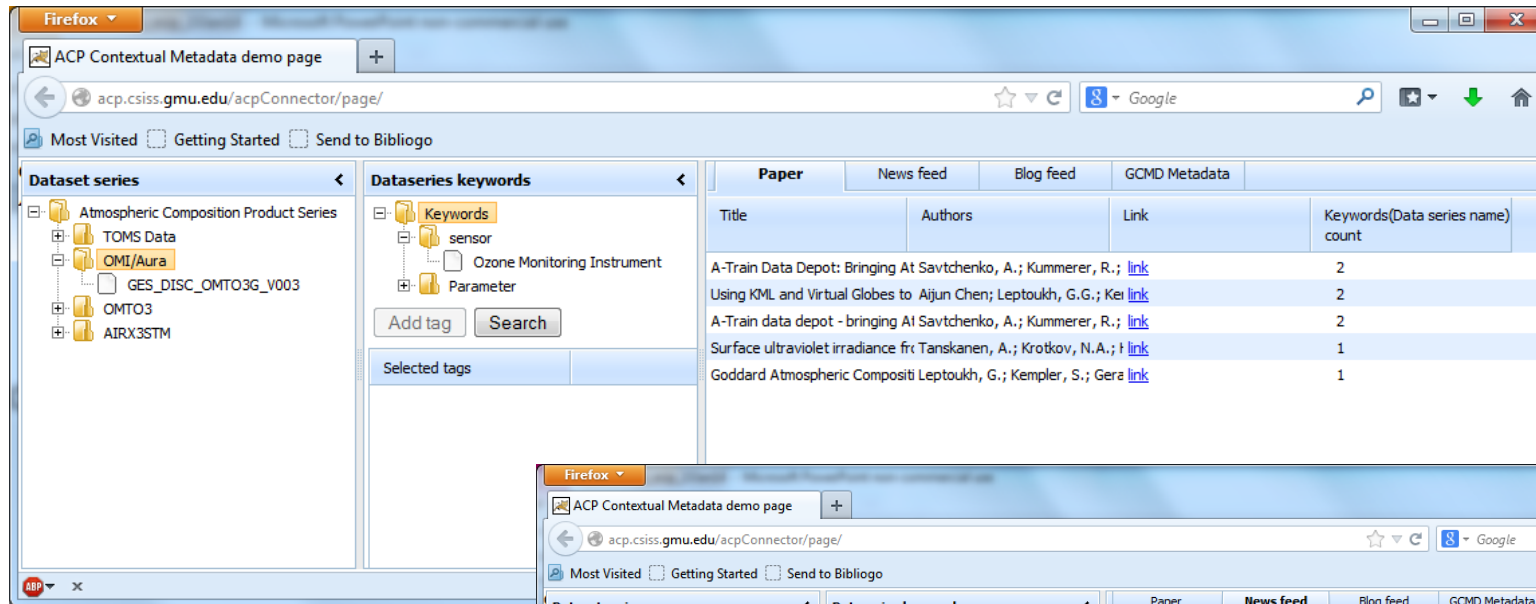
Insert text analysis tools (UIMA, GATE, alchemy, Lucene, etc) in order to

- more accurately identify relevant journal articles that made use of particular datasets
- understand how the journal authors used the dataset

**ISO 19115
Supplemental
Information**



Contextual Information Testing



ACP Contextual Metadata demo page

acp.csiss.gmu.edu/acpConnector/page/

Most Visited Getting Started Send to Bibliogo

Dataset series

- Atmospheric Composition Product Series
 - TOMS Data
 - OMI/Aura
 - GES_DISC_OMTO3G_V003
 - OMTO3
 - AIRX3STM

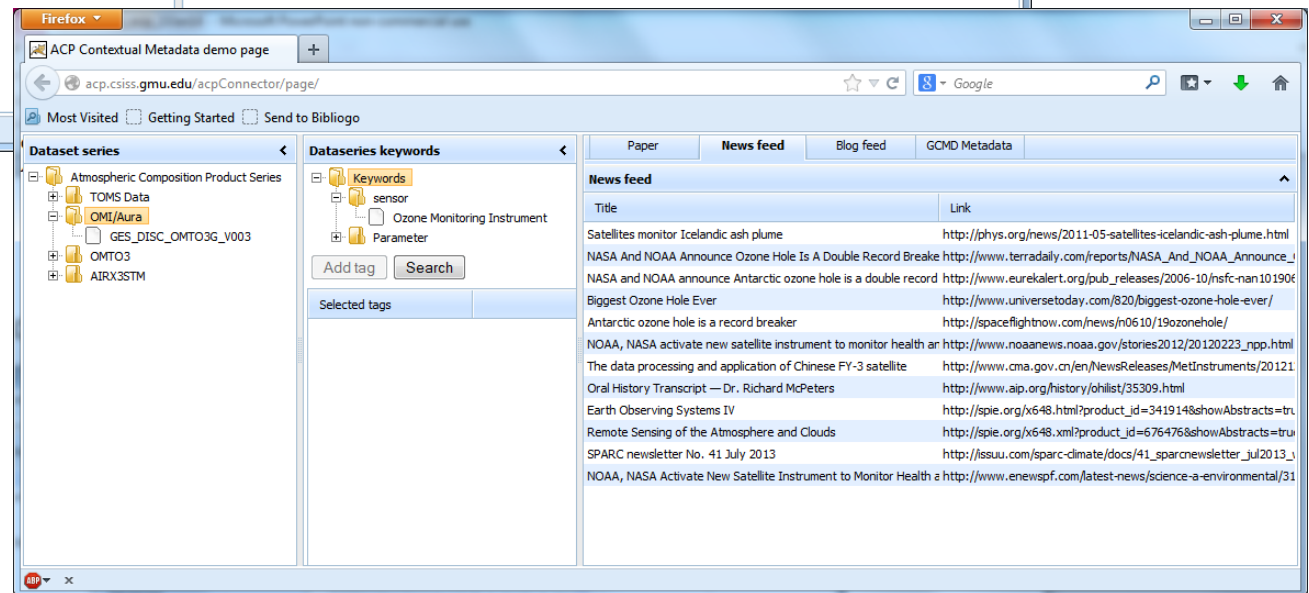
Dataseries keywords

- Keywords
 - sensor
 - Ozone Monitoring Instrument
 - Parameter

Add tag Search

Selected tags

Title	Authors	Link	Keywords(Data series name) count
A-Train Data Depot: Bringing At Savtchenko, A.; Kummerer, R.;		link	2
Using KML and Virtual Globes to Aijun Chen; Leptoukh, G.G.; Kei		link	2
A-Train data depot - bringing At Savtchenko, A.; Kummerer, R.;		link	2
Surface ultraviolet irradiance fr; Tanskanen, A.; Krotkov, N.A.;		link	1
Goddard Atmospheric Compositi Leptoukh, G.; Kempler, S.; Gera		link	1



ACP Contextual Metadata demo page

acp.csiss.gmu.edu/acpConnector/page/

Most Visited Getting Started Send to Bibliogo

Dataset series

- Atmospheric Composition Product Series
 - TOMS Data
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 - GES_DISC_OMTO3G_V003
 - OMTO3
 - AIRX3STM

Dataseries keywords

- Keywords
 - sensor
 - Ozone Monitoring Instrument
 - Parameter

Add tag Search

Selected tags

Title	Link
Satellites monitor Icelandic ash plume	http://phys.org/news/2011-05-satellites-icelandic-ash-plume.html
NASA And NOAA Announce Ozone Hole Is A Double Record Breaker	http://www.terradaily.com/reports/NASA_And_NOAA_Announce_1
NASA and NOAA announce Antarctic ozone hole is a double record	http://www.eurekalert.org/pub_releases/2006-10/nsfc-nan101906
Biggest Ozone Hole Ever	http://www.universetoday.com/820/biggest-ozone-hole-ever/
Antarctic ozone hole is a record breaker	http://spaceflightnow.com/news/n061019ozonehole/
NOAA, NASA activate new satellite instrument to monitor health an	http://www.noaa.gov/newsroom/stories/2012/20120223_npp.html
The data processing and application of Chinese FY-3 satellite	http://www.cma.gov.cn/en/NewsReleases/MetInstruments/20121
Oral History Transcript — Dr. Richard McPeters	http://www.aip.org/history/ohlist/35309.html
Earth Observing Systems IV	http://spie.org/x648.html?product_id=676476&showAbstracts=true
Remote Sensing of the Atmosphere and Clouds	http://spie.org/x648.html?product_id=676476&showAbstracts=true
SPARC newsletter No. 41 July 2013	http://issuu.com/sparc-climate/docs/41_sparcnewsletter_jul2013
NOAA, NASA Activate New Satellite Instrument to Monitor Health a	http://www.eneaspf.com/latest-news/science-a-environmental/31

<http://acp.csiss.gmu.edu/acpConnector/page/>

Working Group on Information Systems and Services



A next step: Giovanni 4 ACP “Portal”

- Configuration of an ACP-tailored Giovanni portal that can be integrated with the ACP site

<http://giovanni.gsfc.nasa.gov/giovanni/>

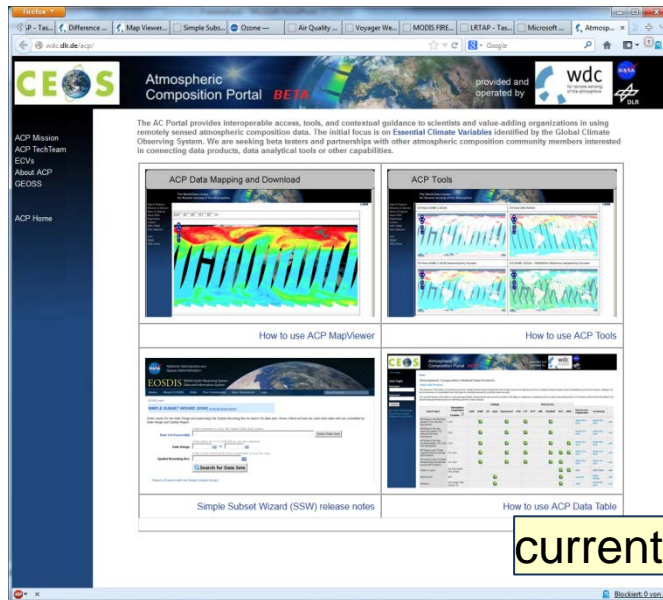
The screenshot shows the Giovanni 4 ACP Portal interface. The browser address bar displays the URL: giovanni.gsfc.nasa.gov/giovanni/#service=INTERACTIVE_MAP&starttime=&endtime=&bbox=-180,-90,180,90&variableFacets=dataFieldDiscipline%3AAerosols%3B. The page title is "Giovanni 4".

The main content area includes the following sections:

- Select Plot:** Radio buttons for Map, Map Animation, Correlation Map, Scatter Plot, Interactive Scatter Plot, Time-Averaged Scatter Plot, Time Series, and Vertical Profile.
- Select Date Range (UTC):** A date range selector with a "Valid Range: 1979-01-01 to 2014-01-10" and a "Please specify a start date." message.
- Select Region (Bounding Box):** A text input field showing "-180, -90, 180, 90" and a globe icon.
- Select Variables:** A sidebar with a tree view showing Disciplines (Aerosols (25), Atmospheric Dynamics (6), Hydrology (2), Water and Energy Cycle (9)) and Measurements (Aerosol Index (1), Angstrom Exponent (4), Component Aerosol Optical Depth (11), Statistics (2), Total Aerosol Optical Depth (7)).
- Number of matching Variables: 25 of 36**
- Keyword:** A search bar with "Search" and "Clear" buttons.
- Table of Variables:** A table with columns: Variable Name, Vertical Dimension, Resolution, Begin Date, End Date, and a checkbox column. The table lists five variables related to Aerosol Optical Depth and Angstrom Exponent.
- Total Variable(s) included in Plot: 0**
- Buttons:** Help, Reset, Feedback, and a large green "Plot Data" button.

The footer contains the NASA logo, contact information for Steven J. Kempler and M. Hegde, and logos for NCAR, OPeNDAP, YUI, and ECHO.

Redesign of ACP Website



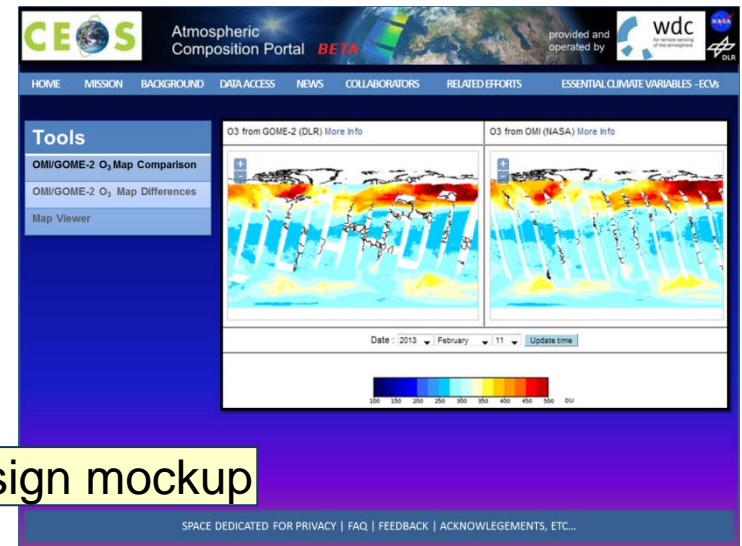
current design

Planning redesign to address feedback from GEOSS and other portal reviews and assessments

Transitioning to Drupal as website platform

Improved site navigation

Improved maintenance and upkeep across ACP



redesign mockup

ACP Technical Team

DLR

- Julian Myer-Arnek
- Oleg Goussev
- Michael Bittner

NASA

- Chris Lynnes
- Peisheng Zhao
- Wenli Yang
- James Johnson
- Gilberto Vincente
- Richard Strub
- Stefan Falke
- Liping Di
- Lingjun Kang
- Yuanzheng Shao
- Weiguo Han



Backups



Collaboration with HTAP



**Task Force on Hemispheric
Transport of Air Pollution**

ACP participated in the recent Task Force on Hemispheric Transport of Air Pollutants (HTAP) meeting in Geneva at WMO Headquarters on 20-22 March 2013

Access to satellite observations is vital for the HTAP community because reliable access to satellite-derived atmospheric composition data will support data comparisons and model evaluations.

- Can the ACP simplify the process of identifying, accessing and using satellite data for HTAP applications in order to increase the acceptance and application of satellite AC data across the HTAP community?
- Taskforce HTAP 2012-2016 Workplan, Work Package 6.7: To provide a networked repository for observational data from satellites relevant to HTAP analyses, particularly for model evaluation, it is necessary to
 - Identify data needs and appropriate repositories
 - development and demonstration of data access



Simple Subset Wizard

Subsetting today:

- Locate data center
- Learn data center search tool
- Search for datasets
- Search for files
- Select files
- Add files to shopping cart
- Specify subsetting criteria

Simple Subset Wizard:

- ~~• Locate data center~~
- ~~• Learn data center search tool~~
- Search for datasets
- ~~• Search for files~~
- ~~• Select files~~
- ~~• Add files to shopping cart~~
- Specify subsetting criteria
- Request Subsets

SIMPLE SUBSET WIZARD (SSW) [V1.05 RELEASE NOTES](#)

Enter values for the Date Range and (optionally) the Spatial Bounding Box to search for data sets; those criteria will also be used when data sets are subsetted by Date Range and Spatial Region.

Data Set Keyword(s)

OMI daily column amount ozone datasets

Select Data Sets


Date Range

Enter dates as YYYY-MM-DD or use the calendars.

2013-03-14 to 2013-03-15

Spatial Bounding Box

Enter South,West,North,East coordinates
-85.08,-139.22,63.28,111.80

 Search for Data Sets

[Report a Problem with the Simple Subset Wizard](#)

Pick a date

< 2013 Mar >

Su	Mo	Tu	We	Th	Fr	Sa
24	25	26	27	28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6


Cancel


SIMPLE SUBSET WIZARD (SSW) [V1.05 RELEASE NOTES](#)

Found 1 subsettable data set.

 Subset: Spatial Region (-85.08,-139.22,63.28,111.80), Temporal Coverage (2013-03-14T00:00:00Z to 2013-03-16T23:59:59Z), Variables for OMI_ColumnAmountO3 v003 in 

- ☐ OMDOAO3e: Column amount ozone based on the DOAS algorithm, 0.25x0.25-degree resolution
- ☐ OMTO3e: Column amount ozone based on the enhanced TOMS version-8 algorithm, 0.25x0.25-degree resolution
- ☐ OMTO3d: Column amount ozone based on the enhanced TOMS version-8 algorithm, 1.0x1.0-degree resolution

 Back to Search

 Subset Selected Data Sets

[Report a Problem with the Simple Subset Wizard](#)